

Petroleum^H P_V

December 29, 2000

The Honorable Carol Browner, Administrator
 U.S. Environmental Protection Agency
 P.O. Box 1473
 Merrifield, VA 22116
 Attention: Chemical Right-to-Know Program

Dear Administrator Browner:

The Petroleum HPV Testing Group appreciates the comments received by the Environmental Protection Agency (EPA), People for the Ethical Treatment of Animals (**PETA**) and Environmental **Defense** (ED) on its Test Plan for Petroleum Coke. The Testing Group is a consortium made up of 72 member companies of the American Petroleum Institute (API), the National Petrochemical & Refiners Association (**NPRA**), the Gas Producers Association (GPA) and the Asphalt Institute, which represent 92 percent of the nation's petroleum refining capacity. The Test Plan was submitted to EPA on April 7, 2000 and posted on their **ChemRTK website** on April 21, 2000.

In the interest of sharing comments and communicating **our** intent with interested stakeholders, the Testing Group is providing a single response to those parties who provided comments. It will also be posted on our **website**.

The Petroleum Coke "Category"

The petroleum coke category consists of petroleum (green) coke and calcined coke. EPA supported the Testing Group's proposal that the similarities in green and calcined coke justified grouping the materials into a single category, although they prefer to reserve categorization to groups of three or more chemicals. **PETA** also agreed with the category justification but expressed disappointment that the Testing Group had not looked outside the industry to include other carbonaceous materials such as coal, activated carbon, charcoal, carbon black, graphite and others. They reasoned that all of these materials are characterized by high carbon content (>90%), low hydrocarbon concentrations, low aqueous **solubility**, and generally low levels of toxic constituents. **PETA** urged that these materials be grouped together for purposes of **the** HPV Program to reduce testing costs and animal use.

*Response: The Testing Group agrees with **PETA** that petroleum coke is chemically similar to many other carbonaceous materials, and that their high elemental carbon content confers a low degree of toxicity. In fact, the Test Plan referenced acute toxicity results for thermal black in its argument not to conduct further acute toxicity testing. However, these materials also have distinct **chemical differences** in hydrocarbon, metal, and mineral content. Coal, for example, can contain high levels of crystalline silica, a known carcinogen. While it may appear practical to test these materials as a single category, the Testing Group is not certain that the regulatory or scientific community would support such a grouping toxicologically. It is unlikely, for example, that "negative" results in a developmental toxicity test of graphite would be accepted as evidence of the **safety** of petroleum coke or carbon black to the developing fetus. As such, it is appropriate from a product stewardship standpoint for the industry to develop **specific** information on petroleum coke.*

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Aquatic Toxicity Testing

EPA suggested that the Testing Group conduct a chronic toxicity test in daphnids in lieu of acute toxicity tests in daphnids and algae because of a concern that leaching **may be too slow to result** in effects during the 96 hour exposure period. EPA reasoned that a 21 day test would allow a longer time for non-carbon constituents to enter the water column and become bioavailable.

*Response: The test plan should have indicated that aquatic **toxicity** testing would be done using a water **accommodated fraction (WAF)** of the coke sample. This is an aqueous extract of the coke sample used in the bioassay in lieu of the solid coke material. The Testing Group recognizes EPA's concerns regarding "extractability" **of hydrocarbons and metals from the carbon matrix, and will conduct tests to determine the optimum conditions for preparing WAF's for use in the bioassay. Those conditions resulting in the highest extractability of material from the coke will be used to prepare the WAF used in the bioassay. Since bioassay exposure time will not determine extractability of the hydrocarbons, we intend to conduct the acute toxicity tests as originally proposed. At EPA's suggestion, the Testing Group will add fish to the species being tested so that a complete base-level screen can be reported.***

Terrestrial Toxicity Testing

PETA questioned why tests for terrestrial toxicity have been included in the Test Plan. They argued that EPA's letter of October 14, 1999 specifically excludes terrestrial toxicity testing from the HPV Program. EPA indicated that it agreed with the plan to conduct earthworm and terrestrial plant studies since one use of petroleum coke involves application to soils.

*Response -- The Testing Group believes that the earthworm **and plant** tests **will** provide important information on the environmental impact of petroleum coke in soils. No terrestrial animals **will** be used in these studies.*

Reproductive/Developmental Toxicity Screening Tests

PETA contended that the reproductive/developmental toxicity test was both unnecessary and inappropriate since the composition of petroleum coke is well characterized and abundant data exist on many analogous compounds. PETA reasoned **that** previous acute and repeated-dose toxicity tests showed that petroleum coke behaves as elemental carbon, and that it would not be absorbed by the body, a **necessary** prerequisite for causing toxicity. Conversely, both EPA and ED agreed with the need to conduct these tests.

*Response: The Testing Group is in agreement with **PETA** that previous testing of petroleum coke has not resulted in systemic toxicity. This is likely due to the very low concentration **and/or** low bioavailability **of the particle-associated hydrocarbons. We further believe that the proposed tests are not likely to result in adverse effects. Nevertheless, petroleum coke does contain trace quantities of various metals and polycyclic aromatic hydrocarbons, some of which have been associated with adverse reproductive or developmental effects. It is the Testing Group's position that the presence of these chemicals, even at trace levels, will continue to raise questions about their health risk until the appropriate tests are done. It is our intent to conduct the tests as proposed.***

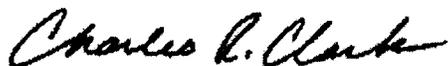
Repeat Dose Toxicity

Environmental Defense asked whether cancer data were available for the two year inhalation studies conducted in rats and monkeys.

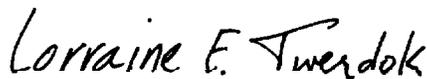
Response: *The section on repeat dose testing in the Test Plan described the results of 2 year studies in both rats and monkeys. The summary indicated that petroleum coke was evaluated at concentrations of 10 and 30 mg/m³ and that it was not carcinogenic by the inhalation route in either the rat or monkey studies. Clinical chemistry, hematology, organ weights, and histopathology were done after 1, 3, 6, 12, and 18 months after exposure. Further detail on the design and results of those studies were in the Petroleum Coke Robust Summaries. No further repeat dose testing is planned.*

The HPV Testing Group appreciates EPA's comments on the Robust Summaries for petroleum coke and has made the suggested changes on that document. In summary, the only change to the original Test Plan is that fish will be added as an additional species to be evaluated in the aquatic toxicity studies of aqueous extracts of coke. The Test Group appreciates your comments and interest in the testing program. If you have further questions or comments about the program, please call Lorraine Twerdok at (202) 682-8344, or visit our website at www.api.org/hpv.

Sincerely,



Richard Clark, Ph.D., Chairman
Petroleum HPV Oversight Committee



Lorraine Twerdok, Ph.D.
Petroleum HPV Program Manager

cc:

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Environmental Defense

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